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Yoram Ofek

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EXAMINER

GREY, CHRISTOPHER P

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/961,076

Applicant(s)

OFEK ET AL.

Examiner

Christopher P. Grey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 29-33, 37-40, 42-50 and 59-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28, 34-36, 41 and 51-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1, 2, 3, 5, 6, 11, 12, 13, 14, 27, 41, 51, 52, 53, 54, 55, 56, 58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6735199.

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

**Regarding claim 1 and 51**, U.S Patent No. 6735199 discloses a first communications switch and a second communications switch connected by at least one communications link, comprising at least one channel, for transmitting a plurality of data units from said communications link to the output of the switching System (Col 42 lines 39-43);  
a Common Time Reference (CTR), divided into a plurality of contiguous time frames (TFs) (Col 42 lines 44-48);

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wherein the time frames have at least one of a plurality of predefined time durations (Col 42 lines 61-63), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that a time frame is a time duration, and furthermore, that the time frame is predefined (Col 43 lines 13-20); wherein each of the connections switches is further comprised of a plurality of input ports and a plurality of output ports, each of the input ports connected to and receiving data units from at least one of the channels, and each of the output ports connected and transmitting data units to at least one of the channels (Col 42 lines 44-48);

wherein each of the communications switches has a switch controller, coupled to the CTR, the respective input ports, and the respective output ports (Col 42 lines 61-63);

wherein each of the first and second communications switches has a switch fabric coupled to the respective switch controller, the respective input ports, and the respective output ports (Col 42 lines 64-67); and

wherein each of the switch controllers is responsive to the CTR and to the respective predefined time durations of respective ones of the time frames, for scheduling a connection via the switch fabric from a respective one of the input ports, on a respective one of the input channels during a predefined time interval (Col 43 lines 1-5).

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**Regarding claim 41, 58,** U.S Patent No. 6735199 discloses a switch with plurality of input ports each with a plurality of input channels and plurality of output ports each with a plurality of output channels for receiving and transmitting the data units (Col 42 lines 49-66);

a common time reference signal coupled to said switch (Col 42 lines 61-63);

wherein the common time reference is partitioned into time frames, and wherein the transfer of the data units is provided during respective ones of a plurality of the time frames (Col 42 lines 44-49 and Col 43 lines 13-20);

wherein the time frames have at least one predefined duration (Col 42 lines 61-63), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that a time frame is a time duration, and furthermore, that the time frame is predefined (Col 43 lines 13-20);;

wherein the time frames at each of the input channels is grouped into time cycles, wherein each of the time frame durations at each of the input channels is one of a plurality of predefined durations (Col 42 lines 45-49 and Col 43 lines 13-20);

wherein the time frames at each of the output channels are grouped into time cycles, wherein each of the time frame durations at each of the output channels is one of a plurality of predefined durations (Col 42 lines 45- 49 and Col 43 lines 13-20); and

a switch fabric for coupling incoming data units between selected ones of the input channels and the output channels, wherein each of the selected input channels is associated with an associated first time frame duration, and wherein

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each of the selected output channels is associated with an associated second time frame duration (Col 42 lines 49-56 and Col 42 lines 64-66).

Transferring the data units during respective ones of the time frames (Col 43 lines 12-20).

**Regarding claim 2**, U.S Patent No. 6735199 discloses each of the switch controllers defines the coupling from each one of the respective input ports for data units received during any one of the time frames, on a respective one of the channels, for output during a predefined time frame to at least one selected one of the respective output ports on at least one selected respective one of the channels (Col 43 lines 1-12).

**Regarding claim 3**, U.S Patent No. 6735199 discloses the data units are output through the switch fabric during a first predefined time frame on a selected respective one of the channels through the respective output port on the first connections switch are forwarded through the respective output port of the second communications switch during a second predefined time frame on a selected respective one of the channels responsive to the CTR (Col 43 lines 13-20).

**Regarding claim 5, 6**, U.S Patent No. 6735199 discloses the data units received at multiple ones of the channels during a first one of the predefined time

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frames are combined for output during a second one of the predefined time frames responsive to the switch controller (Col 43 lines 6-12).

**Regarding claims 11, 12, 13, 54, 55, 56, U.S Patent No. 6735199**

discloses time frames of a predefined duration, where a controller schedules the transfer of the data units received during at least one of a plurality of time frames, for output during a different one of the time frames as disclosed in the rejection of claim 1. It would have been obvious to one of the ordinary skill in the art at the time of the invention that any single time frame may be divided in to a number of sub time frames, where clearly a number of sub time frames combined is equivalent to one time frame, thus the durations are less. It would have also been obvious to transfer data units based on the sub-time frame.

**Regarding claim 14, U.S Patent No. 6735199** discloses an optical channel (Col 44 lines 15-17), where it would have been obvious to one of the ordinary skill in the art at the time of the invention to support a number of different channels based on the possibilities of switches as disclosed in Col 44 lines 47-52.

**Regarding claim 27, U.S Patent No. 6735199** in claim 15 discloses the switch fabric is at least one of the following: a crossbar, a generalized multi-stage cube network, a Clos network, a Benes network an Omega network, a Delta network, a multi-stage shuffle exchange network, a Banyan network, a

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combination of demultiplexers and multiplexers, a passive optical star, a plurality of passive optical stars, a plurality of tunable lasers, a plurality of tunable lasers connected to at least one passive optical star, a plurality of optical mnable receivers connected to at least one passive optical star, and an optical switch (Col 44 lines 47-52) .

**Regarding claim 52**, U.S Patent No. 6735199 discloses defining the coupling from each one of the respective input ports for data units received during any one of the time frames, on a respective one of the channels, for output during a predefined time frame to at least one selected one of the respective output ports on at least one selected respective one of the channels (Col 43 lines 6-12).

**Regarding claim 53**, U.S Patent No. 6735199 discloses outputting the data units during a first predefined time frame on a selected respective one of the channels through the respective output port on a first communications switch; and forwarding through the respective output port of a second communications switch during a second predefined time frame on a selected respective one of the channels, responsive to the CTR (Col 45 lines 13-20).



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2. Claim 4, 7, 8, 9, 10, 20, 21, 22, 15-19, 25, 26, 28, 34, 35, 36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over of U.S. Patent No. 6735199 in view of US Patent No. 6760328.

**Regarding claim 4, 7, 8, 9, 10,** US Patent No. 6760328 discloses the first and second predefined time frames are of different time durations (Col 23 lines 36-38).

**Regarding claim 20, 21, 22 and 23** US Patent No. 6760328 discloses the first and second predefined time frames being of different time durations (Col 23 lines 36-38). It would have been obvious to one of the ordinary skill in the art at the time of the invention that is first and second times frames have different predefined time durations, the difference between the time frames will also be predefined.

**Regarding claim 15,** US Patent No. 6760328 discloses data packets (Col 22 lines 41-47), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that the data units may be any data, including the packets or any other type of data within the scope of the invention.

**Regarding claim 16,** US Patent No 6760328 discloses during selected ones of the time frames, transmitting data units over the channel (Col 23 lines 44-47).

**Regarding claim 17,** US Patent No. 6760328 discloses a predefined number of at least one consecutive one of the time frames comprising a time

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cycle, wherein a predefined number of at least one consecutive one of the time cycles comprise a super cycle (Col 24 lines 29-40).

**Regarding claim 18, 19,** US Patent No. 6760328 discloses the switch controller scheduling the transfer of data units from and to selected ones of the channels on a periodically recurring basis (Col 24 lines 30-40).

**Regarding claim 25, 26** US Patent No 6760328 discloses time frames of a predefined duration (Col 23 lines 33-38). It would have been obvious to one of the ordinary skill in the art at the time of the invention to divide any time frame into sub time frames, where if a time frame has a predefined duration, a sub-time frame would also have a dedicated duration.

**Regarding claim 28,** US Patent No. 6735199 discloses wherein the plurality of input ports each receives data unit over at least one of a plurality of incoming channels (j), and wherein the plurality of output ports each sends data units over at least one of a plurality of outgoing channels (1); wherein each of the incoming channels (j) has a unique time reference (UTR-j) that is phase independent of the C1\*2.) wherein the U'rR-j is divided into continuous U'lx-j super cycles; wherein the UW-j super cycles are divided into continuous UW-j time cycles; and wherein the U'rmj time cycles is divided into continuous Ua-j time frames (Col 43 lines 20-30;

US Patent No. 6735199 discloses the UTR-J' time frames have a plurality of predefined time durations (Col 22 lines 49-55).

**Regarding claim 34,** US Patent No. 6735199 discloses buffer queues, wherein each of the respective buffer queues is associated, for each of the CTR

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time frames, with a combination of one of the incoming channels and one of the outgoing channels; a mapping controller within the switch controller system for logically mapping, for each of the (U1'R-jl time frames, selected incoming channels ũ') to selected buffer queues, and for logically mapping, for each of the CTR time frames, selected ones of the plurality of buffer queues to selected outgoing channels (1)9 wherein each of the buffer queues is further comprised of an alignment subsystem comprised of a plurality of time frame queues, wherein each of the time frame queues comprises means to determine that the respective time frame queue is empty, wherein each of the time frame queues further comprises means to determine that the respective time frame queue is not empty; wherein the data units that arrive via the incoming channel U) are stored in the respective time frame queue of the alignment subsystem responsive to the mapping controller; and wherein the mapping controller further provides for coupling of selected ones of the time frame queues to respective ones of the outgoing channels (1), for transfer of the respective stored data units during the respective associated time CTR time frames (Col 43 lines 35-61).

**Regarding claim 35,** US Patent No. 6735199 discloses wherein the alignment subsystem, responsive to the mapping controller, transfers the data units associated with a respective first time frame as defied by the Ulna-j into an empty first time frame queue from incoming channel U), during the respective first time frame ms defied by the U'rmj , wherein the first time frame queue is designated as full; and wherein the alignment subsystem, responsive to the mapping controller, transfers data unit out of a 111 second time frame queue to outgoing

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channel (1), during at least one of the following: a selected one of the CTR time frames and a selected one of the CTR subtime frames, wherein the second time frame queue is designated as empty (Col 43 lines 63-Col lines 11).

**Regarding claim 36**, US Patent No. 6735199 discloses the first time frame queue and the second time frame queue being mutually exclusive at all times (Col 44 lines 10-11)

3. Claim 24 and 57 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over of U.S. Patent No. 6735199 in view of US Patent No. 6727132.

**Regarding claim 24, 57**, US Patent No. 6272132 discloses a time frame delimiter separating time frames (Col 21 lines 9-11). It would have been obvious to one of the ordinary skill in the art at the time of the invention that a sub time frame is inherent within the art, where if time frames can be separated by a delimiter, sub time frames may be separated as well.

***Allowable Subject Matter***

4. Claims 29-33, 37-40, 42-50, and 59-67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Kim (US 6044091) discloses a method and apparatus for scheduling cells based on presynchronized frames.

(b) Zheng (US 5392280) discloses a data transmission system and scheduling protocol for connection oriented packet or cell switching networks.

(c) Hayter (US 5577035) discloses an apparatus and method of processing bandwidth requirements in an ATM switch.

(d) Ketseoglou (US 6130886) discloses coexisting communication systems.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey  
Examiner  
Art Unit 2667

*C. Grey*  
*Oct 14, 2005*

  
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